BOMEX

User Manual

Customer Display | VFD

POS Model:
-Xtreme-POS
-ARM-POS

Version: 20130901

Table of Contents

Chapter 1 Introduction 3

Chapter 2 General Specification 5

Chapter 3 Interface 7

Chapter 4 Command Description 8

Chapter 5 Character Set 17

Chapter 6 PL-200 Setup Software Utility Guide 23

Chapter 7 Installation Guide 36

Chapter 1 Introduction

1.1 Features

The PL-200 is Vacuum Fluorescent Displays which display 20 columns and2 lines, each columns is 5x7 dots.

Blue-green fluorescent color is easy on the eyes.

The display panel is movable so that it can be adjusted for the best viewing angle.

The customer display have different height by adjusting the support.

The interface of PL-200 is RS-232, with baud rates select 9600 or 19200 bps for PL-200.

The customer display have provided the pass through function to reduce the cable connection.

The user defined and international character sets are the standard of customer display.

Supports 10 command modes, with EPSON command mode set as default.

Supports power from 5V to 12V, it prevents any mindless use of improper power input to cause malfunction.

Easy configure & various settings through its free powerful set up software i.e. Welcome message and plenty of code pages setting and selection.

Control boards design in top Panel to prevent water or wet counter surface may damage from the bottom.

Optional “round-shape” small base for space-saving, stable and ingenious.

Panel is structured to easy-detachable and available for wall mounting install and OEM.

Attention

1. This specification shall apply only to the product(s) coming along with this manual inside.
2. This manual may not apply to the previous or later product(s).
3. This specification may be modified without any notice. If it is necessary for “customers” to have a latest manual about specification, please inquire your suppliers.

1.2 Outline

The customer display outline has included of three parts: the panel, the support, and the interface adapter.

The standard VFD customer display should include following accessories:

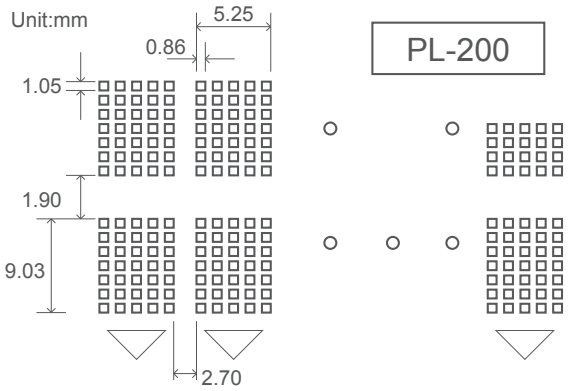
Item	Description	Dimension (mm)	Q'ty
1	Panel of PL-200	188*40*9	1
2	Support	130	2
3	D-SUB 9PIN RS-232 Cable	1600	1
4	<PL-200> +5V PC 4P Plug Power Kit or PS/2 Power Kit or USB Power Kit or 100V~240V Universal Adapter (5V/2A) or 110V US or 230V Europe 2P Adapter (5V/1A)	 46(W) x 85(D) x 31(H) 54(W) x 83(D) x 48(H)	1

Above accessories may be different due to customers' requirement when delivery.

Chapter 2 General Specification

2.1 Tube Display

Customer Display	Vacuum Fluorescent Display Blue Green
Display Pattern	5 x 7 Dot Matrix
Brightness	350~700 cd/m²
Character Type	95 Alphanumeric & 32 International Characters
Character Size	5.25 mm (W) x 9.03 mm (H)
Character Number	20 x 2
Character Pitch	Refer the figure 2.1



2.2 Electricity

Central Control Unit	CPU :TI LM 3S3634 ROM : 128K ROM RAM : 32K SRAM
Speed	CPU : 50 MHz
Connector	USB TYPE A 9 PIN D-SUB Connector
Power Source	DC + 5V~12V
Power Consumption	2 Watts Average (Maximum 3 Watts)

2.3 Overall Dimensions

Dimension of Panel PL-200	188*40*9
Dimension of Support One Support Two Support	 One Support: 217*106*248 Two Support: 217*106*378
Dimension of Base	217*106*20 mm
Viewing Angle	0°~60°
Horizontal Rotation	180°
Weight	550g

2.4 Environment

Operating Temperature	+10°C to +40°C
Storage Temperature	-10°C to +50°C
Relative Humidity	0% to 90% RH

2.5 Driver Interface

Driver Interface	RS232 / USB

2.6 User Setting

The default protocol is 9600 bps, non-parity, 8 data bits, 1 stop bit and with DTR/DSR control.

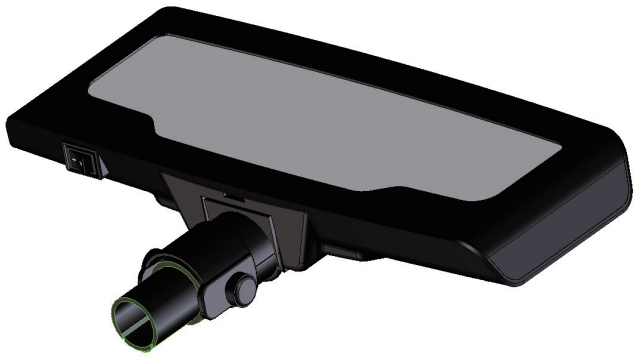
2.6.1 Function Setting

No switch, all user setting is set up by Application Program

AP

(I) Baud Rate Select

Function Description Baud Rate (bps)
9600
19200



(II) Command Type Select

Function Description	Software Defined
Command Type	Hex Code
PL-200	00
EPSON POS D101	01
UTC Standard	02
UTC Enhance	03
AEDEX	04
ADM788	05
DSP800	06
CD5220	07
EMAX	08
LOGIC CONTEOL	09

(III) International Character Set

Function Description	
International Character Set (Code 20H-7FH)	Code Table (Code 80H-FFH)
U.S.A.	PC-437 (USA) (Standard European)
FRANCE	PC-850 (Multilingual)
GERMANY	PC-850 (Multilingual)
U.K.	PC-850 (Multilingual)
DENMARK I	PC-850 (Multilingual)
SWEDEN	PC-850 (Multilingual)
ITALY	PC-850 (Multilingual)
SPAIN	PC-850 (Multilingual)
JAPAN	Katakana
NORWAY	PC-865 (Nordic)
DENMARK II	PC-850 (Multilingual)
SLAVONIC/RUSSIAN	PC-437 (USA) (Standard European)
	Factory Define
	Factory Define
	Factory Define
	Factory Define

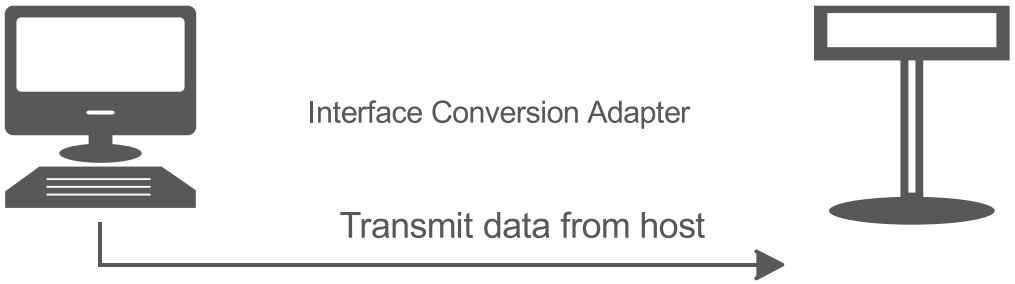
Chapter 3 Interface

3.1 Interface

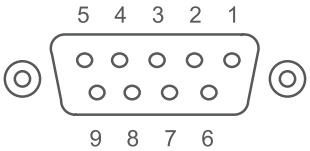
Specifications
Data Transmission Method : Asynchronous Serial.
Default Protocol : 9600/19200 bps, non-parity, 8 data bits, 1 stop bit.
Communication Protocol

2.2 Electricity

The interface adapter section has connectors for the display panel, the printer, the power supply, and host computer. All the data transmitted from the host computer will be received by the display. If this data is for the display, the data will be processed, and if it is for the printer, it will be transmitted to the printer. Whether the data is for the display or the printer can be switched using the peripheral device selection command.



Connector for Host Computer



PIN Assignment

No.	Signal	I/O	Description
1	NC		No Connection
2	TXD	OUTPUT	Transmit Data
3	RXD	INPUT	Receive Data
4			
5	GND		Power GND
6			
7			
8			
9	By Selection		N.C. or +5V ~ +12V

Chapter 4 Command Description

4.1 PL-200 Command Set

4.1.1 PL-200 Command Mode

Command	Hex	Function Description
HT	09	Move cursor right (Only valid in overwrite mode)
BS	08	Move cursor left (Only valid in overwrite mode)
CR	0D	Move cursor to left-most position (Only valid in overwrite mode)
ESC@	1B 40	Initialize customer display to initial state,clears display buffer, set display m and sets current display row to upper row
ESC U	1B 55	Select upper row as current row (Initial default)
ESC D	1B 44	Select lower row as current row
ESC C r c	1B 43 r c	Move cursor to specified position (Only valid in overwrite mode) r=U, upper row ; r=D, lower row 1 ≦ c ≦ 20 (column number)
ESC E r n	1B 45 r n	Set special effect or display mode of specified row
ESC R n	1B 52 n	Set international font sets (Please refer International Font Set Table)
ESC % n	1B 25 n	Set font pattern n=0, selected ; n=1, canceled
ESC & n s [p]	1B 26 n s data	Define user font pattern n=code for first character s=code for last character required for each character

(REMARK) * Using commands “ESC E r n”, the value (Hex) of parameter

r 58h=all rows
55h=upper row
44h=lower row

n special function, the value is one of
30h=shift mode (Default display mode)
31h=rotation mode
32h=blink mode
33h=clear this row and switch to shift mode
34h=overwrite mode
35h=vertical mode

* International Font Set Table

n (Hex)	International Font Set	n (Hex)	International Font Set
30h	U.S.A	32h	FRANCE
31h	GERMANY	33h	JAPAN

4.1.2 EPSON Command Mode

Command	Hex	Function Description
HT	09	Move cursor right
BS	08	Move cursor left
US LF	1F 0A	Move cursor up
LF	0A	Move cursor down
US CR	1F 0D	Move cursor to right-most position
CR	0D	Move cursor to left-most position
HOM	0B	Move cursor to home position
US B	1F 42	Move cursor to bottom position
US $ x y	1F 24 x y	Move cursor to specified position 1 ≦ x(column) ≦ 20 ; 1 ≦ y(row) ≦ 2
US C n	1F 43 n	Select/cancel cursor display n=0, canceled ; n=1, selected
CLR	0C	Clear display screen
CAN	18	Clear cursor line
US X n	1F 58 n	Brightness adjustment 1 ≦ n ≦ 4
US E n	1F 45 n	Blink display screen 0 ≦ n ≦ 255 (n*50msec) ON / (n*50msec) OFF n= 0, blinking is canceled n=255, display is turned off
ESC @	1B 40	Initialize display
ESC t n	1B 74 n	Select character code table 0 ≦ n ≦ 10 (Please refer “Chapter 5”)
ESC R n	1B 52 n	Select international character set (Please refer International Font Set Table)
US r n	1F 72 n	Select/cancel reverse character n=0, canceled ; n=1, selected
US MD1	1F 01	Specify overwrite mode
US MD2	1F 02	Specify vertical scroll mode
US MD3	1F 03	Specify horizontal scroll mode
US . n	1F 2E n	Specify period display n= display character code
US , n	1F 2C n	Specify comma display n= display character code
US ; n	1F 3B n	Specify semicolon (period+comma) display n= display character code
US # n m	1F 23 n m	Specify display annunciator,, turn the annunciator at “m” column on or off n=0,1 (Off, On) ; 0 ≦ m ≦ 20
ESC & s n m [a(p1..p5)] (m-n+1)	1B 26 s n m [a(p1..p5)] (m-n+1)	Define download characters s=1 ; 32 ≦ n ≦ m ≦ 126 ; a=5 (p1..p5 = pattern1..pattern5)
ESC ? n	1B 3F n	Cancel user-defined characters 32 ≦ n ≦ 126 (n=character code)
ESC % n	1B 25 n	Select/cancel download character set n=0, canceled ; n=1, selected
ESC W n s (x1 y1 x2 y2)	1B 57 n s (x1 y1 x2 y2)	Specify/cancel the window range n=1,2,3,4 (four windows) ; s=0,1 (disable, enable) 1 ≦ x1 ≦ x2 ≦ 20 (column) ; 1 ≦ y1 ≦ y2 ≦ 2 (row)

US :	1F 3A	Set starting/ending position of macro definition
US ^ n m	1F 5E n m	Execute and quit macro 0 ≦ (n,m) ≦ 255 n: specifies the time interval for display of characters in units of [n* 50msec] m: specifies the interval of macro execution every [m*50msec]
US @	1F 40	Execute self-test
US T h m	1F 54 h m	Set time :0 ≦ h ≦ 23 ; 0 ≦ m ≦ 59
US U	1F 55	Display of time counter

* International Font Set Table

n (Hex)	International Font Set	n (Hex)	International Font Set
00h	U.S.A.	08h	JAPAN
01h	FRANCE	09h	NORWAY
02h	GERMANY	0Ah	DENMARK II
03h	U.K.	0Bh	RUSSIA
04h	DENMARK I	0Ch	SLAVONIC
05h	SWEDEN	0Dh	TURKEY
06h	ITALY	0Eh	PORTUGAL
07h	SPAIN	0Fh	SPAIN CP852

※ Specify decimal point, comma, semicolon, annunciator*

(1) US . n (Decimal Point) / US , n (Comma) / US ; n (Semicolon):
The displayed character codes are form 32(20h) to 127(7Eh), and 128(80h) to 255(FFh) in the character code table. The period/comma/semicolon displayed only for n. The period is not displayed for the subsequent display characters.

(2) US # n m (annunciator):
[range] n = 0(00h) or 1(01h) / m = 0(00h)~20(14h)
[notes] When n= 0, the annunciator at column m is turned off.
When n= 1, the annunciator at column m is turned on.
”m” specify column number (the most left column is column 1) at which annunciator to be turned on/off is placed.
When m = 0, all annunciators are turned on or off.
Once an annuciator(s) is turned on, it remains on until turned off by this command, the ESC@ or US@ command is executed,or the power is turned off.
[example]: To turn on the annunciator at the third column: [n = 01h], [m = 03h]
To turn off all the annunciators: [n = 00h], [m = 00h]

Above commands relating decimal point, comma, semicolon, and annunciator may not be available due to hardware limit of display tube.

4.1.3 UTC Standard Command Mode

Command	Hex	Function Description
BS	08	Back space
HT	09	Horizontal tab
LF	0A	Line feed
CR	0D	Carriage return
DC0 p	10 p	Move cursor to specified position, 0 ≦ p ≦ 39 (Please refer Row Character Position Chart)
DC1	11	Over write display mode
DC2	12	Vertical scroll mode
DC3	13	Cursor on
DC4	14	Cursor off
ESC d	1B 64	Change to UTC enhanced mode
US	1F	Clear display

Row Character Position Chart (Decimal)

Row1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Row2	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39

Row Character Position Chart (Hex)

Row1	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13
Row2	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F	20	21	22	23	24	25	26	27

4.1.4 UTC Enhance Command Mode

Command	Hex	Function Description
ESC u A..CR	1B 75 41 [data x 20] 0D	Upper line display
ESC u B..CR	1B 75 42 [data x 20] 0D	Bottom line display
ESC u D..CR	1B 75 44 [data x 45] 0D	Upper line message scroll continuously
ESC u E..CR	1B 75 45 hh ':' mm 0D	Set and display 24 hour time 0 ≦ h ,m ≦ 9
ESC u F..CR	1B 75 46 [data x 45] 0D	Upper line message scroll once pass
ESC u I..CR	1B 75 49 [data x 40] 0D	Two line display
ESC RS..CR	1B 0F 0D	Change to UTC standard mode

4.1.5 AEDEX Command Mode

Command	Hex	Function Description
! # 1..CR	21 23 31 [data x 20] 0D	Upper line display
! # 2..CR	21 23 32 [data x 20] 0D	Bottom line display
! # 4..CR	21 23 34 [data x 45] 0D	Upper line message scroll continuously
! # 5..CR	21 23 35 hh ':' mm 0D	Set and display 24 hour time 0 ≦ h ,m ≦ 9
! # 5..CR	21 23 35 0D	Display 24 hour time
! # 6..CR	21 23 36 [data x 45] 0D	Upper line message scroll once pass
! # 9..CR	21 23 39 [data x 40] 0D	Two line display

4.1.6 ADM788 Command Mode

Command	Hex	Function Description
CLR	0C	Clear display
CR	0D	Carriage return
SLE1	0E	Clear up line and move cursor to upper line left most end
SLE2	0F	Clear low line and move cursor to lower line left most end
DC0	10 n	Set period to upper line last n position 1 ≦ n ≦ 7
DC1	11 n	Set line blinking n=1, upper line n=2, lower line
DC2	12 n	Clear line blinking n=1, upper line n=2, lower line
SF1	1E	Clear field 1 and move cursor to field 1 fast position
SF2	1F	Clear field 2 and move cursor to field 2 fast position

4.1.7 DSP800 Command Mode

Command	Hex	Function Description
EOT SOH I n ETB	04 01 49 n 17	Select international character set (Please refer International Font Set Table)
EOT SOH P n ETB	04 01 50 n 17	Move cursor to specified position 49 ≦ n ≦ 88
EOT SOH C n m ETB	04 01 43 n m 17	Clear display range from n position to m position and move cursor to n position 49 ≦ n ≦ m ≦ 88
EOT SOH A n ETB	04 01 41 n 17	Brightness adjustment 1 ≦ n ≦ 4
EOT SOH % ETB	04 01 25 17	Initialize display

* International Font Set Table

n (Hex)	International Font Set	n (Hex)	International Font Set
30h	U.S.A.	38h	JAPAN
31h	FRANCE	39h	NORWAY
32h	GERMANY	3Ah	DENMARK II
33h	U.K.	3Bh	RUSSIA
34h	DENMARK I	3Ch	SLAVONIC
35h	SWEDEN	3Dh	TURKEY
36h	ITALY	3Eh	PORTUGAL
37h	SPAIN	3Fh	SPAIN CP852

4.1.8 CD5220 Command Mode

Command	Hex	Function Description
ESC DC1	1B 11	Overwrite mode
ESC DC2	1B 12	Vertical scroll mode
ESC DC3	1B 13	Horizontal scroll mode
ESC Q A CR	1B 51 41 [N]20 0D	Set string display mode, write string to upper line
ESC Q B CR	1B 51 42 [N]20 0D	Set string display mode, write string to lower line
ESC Q D CR	1B 51 44 [N]m20 0D	Upper line message scroll continuously m<40
ESC [D	1B 5B 44	Move cursor left
BS	08	Move cursor left
ESC [C	1B 5B 43	Move cursor right
HT	09	Move cursor right
ESC [A	1B 5B 41	Move cursor up
ESC [B	1B 5B 42	Move cursor down
LF	0A	Move cursor down
ESD [H	1B 5B 48	Move cursor to home position
HOM	0B	Move cursor to home position
ESC [L	1B 5B 4C	Move cursor to left-most position
CR	0D	Move cursor to left-most position
ESC [R	1B 5B 52	Move cursor to right-most position
ESC [K	1B 5B 4B	Move cursor to bottom position
ESC l x y	1B 6C x y	Move cursor to specified position $1 \leqq x \leqq 20$ (column) ; y=1,2 (row)
ESC W s x1 x2 y	1B 57 s x1 x2 y	Enable or disable the window range at horizontal scroll mode s=0,1 (disable, enable) $1 \leqq x1 \leqq x2 \leqq 20$ (column) ; y=1,2 (row)

Command	Hex	Function Description
CLR	0C	Clear display screen, and clear string mode
CAN	18	Clear cursor line, and clear string mode
ESC * n	1B 2A n	Brightness adjustment 1 ≦ n ≦ 4
ESC & s n m [a(p1..p5)] (m-n+1)	1B 26 s n m [a(p1..p5)] (m-n+1)	Define download characters s=1 ; 32 ≦ n ≦ m ≦ 126 ; a=5 (p1..p5 = pattern1..pattern5)
ESC ? n	1B 3F n	Delete download characters 32 ≦ n ≦ 126 (n=character code)
ESC % n	1B 25 n	Select / cancel download character set. n=0, canceled ; n=1, selected
ESC _ n	1B 5F n	Set cursor ON/OFF n=0,1 (Off,On)
ESC f n	1B 66 n	Select international fonts set
ESC c n	1B 63 n	Select fonts, ASCII code or JIS code
ESC = n	1B 3D n	Select peripheral device n=1, printer ; n=2, display ; n=3, printer & display
ESC@	1B40	Initialize display

(REMARK)

* While using command “ESC Q A” or “ESC Q B”, these two commands could be used combining with terminal printer - TP 2688 or TP3688

* If using command “ESC Q A” or “ESC Q B”, others commands can’t be used except sing command “CLR” or “CAN” to change operating mode.

* If using command “ESC Q D”, message on upper line will move continuously till receiving a new command, clear ing upper line, and moving cursor to most left position on upper line.

n (Character)	International Font Set	n (Character)	International Font Set
A	U.S.A	W	SWEDEN
G	GERMANY	D	DENMARK I
I	ITALY	E	DENMARK II
J	JAPAN	L	SLAVONIC
U	U.K.	R	RUSSIA
F	FRANCE	T	TURKEY
S	SPAIN	O	PORTUGAL
N	NORWAY	P	SPAIN CP852

* Select Code Table

n (Character)	International Code
A	compliance with ASCII code
J	compliance with JIS code
R	compliance with RUSSIA code
L	compliance with SLAVONIC code

4.1.9 EMAX Command Mode

Command	Hex	Function Description
ESC DC1	1B 11	Overwrite mode
ESC DC2	1B 12	Vertical mode
ESC DC3	1B 13	Horizontal scroll mode
ESC [D	1B 5B 44	Move cursor left
BS	08	Move cursor left
ESC [C	1B 5B 43	Move cursor right
HT	09	Move cursor right
ESC [A	1B 5B 41	Move cursor up
ESC [B	1B 5B 42	Move cursor down
ESC [H	1B 5B 48	Move cursor to home position
HOM	0B	Move cursor to home position
ESC [L	1B 5B 4C	Move cursor to left-most position
CR	0D	Move cursor to left-most position
ESC [R	1B 5B 52	Move cursor to right-most position
ESC [K	1B 5B 4B	Move cursor to bottom position
ESC l x y	1B 6C x y $1 \leqq x \leqq 20$, y =1,2	Move cursor to specified position
ESC @	1B 40	Initialize display
CLR	0C	Clear display screen, and clear string mode
CAN	18	Clear cursor line, and clear string mode
ESC * n	1B 2A n $1 \leqq n \leqq 4$	Brightness mode
ESC _ n	1B 5F n n = 0,1	Set cursor ON/OFF
ESC f n	1B 66 n	Select international fonts
ESC c n	1B 63 n	Select fonts, ASCII code or JIS code

4.1.10 LOGIC Command Mode

Command	Hex	Function Description
^Q	11	Overwrite mode
^R	12	Vertical mode
^I	09	Horizontal tab
^H	08	Back space
^J	0A	Line feed
^M	0D	Carriage return
^S	13	Cursor on
^T	14	Cursor off
^_	1F	Reset
^D n	04 n	Brightness mode 04 FF – 100% Brightness mode 04 60 – 60% Brightness mode 04 40 – 40% Brightness mode 04 20 – 20% Brightness mode
^P	10	Digital select e.g 10 00 MSD of top row 10 13 LSD of top row 10 14 MSD of bottom row 10 27 LSD of bottom row

Chapter 5 Character Set

5.1 U.S.A. / Standard Character Set (20h - 7Eh)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
20h		!	“	#	$	%	&	‘	(	)	*	+	,	-	.	/
30h	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
40h	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
50h	P	Q	R	S	T	U	V	W	X	Y	Z	[	\	]	^	_
60h	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
70h	p	q	r	s	t	u	v	w	x	y	z	{	|	}	~	

5.2 International Character Selection

No.	International	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
	U.S.A.	#	$	@	[	\	]	^	`	{	|	}	~
1	FRANCE	#	$	à	°	Ç	§	^	`	é	ù	è	¨
2	GERMANY	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	β
3	U.K.	£	$	@	[	\	]	^	`	{	|	}	~
4	DENMARK I	#	$	@	Æ	Φ	Â	^	`	æ	ø	â	~
5	SWEDEN	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
6	ITALY	#	$	@	°	\	é	^	ù	à	ò	è	ì
7	SPAIN	₧	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~
8	JAPAN	#	$	@	[	¥	]	^	`	{	|	}	~
9	NORWAY	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
10	DENMARK II	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü
11	SLAVONIC	#	$	@	[	\	]	^	`	{	|	}	~
12	RUSSIA	#	$	@	[	\	]	^	`	{	|	}	~

5.3 Character Code Table

5.3.1 Page 0 (PC437: U.S.A., Standard Europe)

00h – 7Fh

	10h	20h	30h	40h	50h	60h	70h
0			0	@	P	`	p
1		!	1	A	Q	a	q
2		"	2	B	R	b	r
3		#	3	C	S	c	s
4		$	4	D	T	d	t
5		%	5	E	U	e	u
6		&	6	F	V	f	v
7		‘	7	G	W	g	w
8		(	8	H	X	h	x
9		)	9	I	Y	i	y
A		*	:	@	Z	j	z
B		+	;	A	[	k	{
C		,	<	B	\	l	|
D		-	=	C	]	m	}
E		.	>	D	^	n	~
F		/	?	E	_	o	

To be continued on next page…

80h – FFh

	80h	90h	A0h	B0h	C0h	D0h	E0h	F0h
0	Ç	É	á	▒	└	╨	α	≡
1	ü	æ	í	▓	┴	╤	ß	±
2	é	Æ	ó	▓	┬	╥	Γ	≥
3	â	ô	ú	|	├	╙	π	≤
4	ä	Ë	ñ	┤	─	╘	Σ	⌠
5	à	ò	Ñ	╡	┼	╒	σ	⌡
6	å	û	ª	╢	╞	╓	µ	÷
7	ç	ù	º	╖	╟	╫	τ	≈
8	ê	¤	Î	╕	╚	╪	Φ	°
9	ë	Ô	⌐	╣	╔	┘	Θ	·
A	è	Ü	¬	║	╩	┌	Ω	·
B	ï	¢	½	╗	╦	■	δ	√
C	î	£	¼	╝	╠	▬	∞	ⁿ
D	ì	¥	¡	╜	═	▌	φ	²
E	À	₧	«	╛	╬	▐	ε	■
F	Å	ƒ	»	┐	╧	▀	∩	

5.3.2 Page 1 (Japanese Katakana)

	80h	90h	A0h	B0h	C0h	D0h	E0h	F0h
0	▄	▌		▬	タ	ミ	▫	日
1	▄	▌	・	ア	チ	ム	■	月
2	▄	▌	「	イ	ツ	メ	■	火
3	▄	▌	」	ウ	テ	モ	○	水
4	▄	▌	、	エ	ト	ヤ	●	木
5	▄	▒	・	オ	ナ	ユ	◇	金
6	▄	▒	ヲ	カ	ニ	ヨ	◆	土
7	▄	→	フ	キ	ヌ	ラ	◆	年
8	▄	←	ィ	ク	ネ	リ	►	円
9	▄	↑	ゥ	ケ	ノ	ル	◄	分
A	▄	↓	ェ	コ	ハ	レ	▲	人
B	▄	×	ォ	サ	ヒ	ロ	▼	大
C	▌	÷	ャ	ッ	フ	ワ	《	中
D	▌	±	ュ	ス	ヘ	ン	》	小
E	▌	≤	■	セ	ホ	“	½	〒
F	▌	≥	ッ	ソ	マ	°	¼	℃

5.3.3 Page 2 (CP-850: Multilingual)

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
9_	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	×	ƒ
A_	á	í	ó	ú	ñ	Ñ	ª	º	¿	®	¬	½	¼	¡	«	»
B_	▒	▒	▓	|	┤	Á	Â	À	©	╣	║	╗	╝	¢	¥	┐
C_	└	┴	┬	├	─	┼	ã	Ã	╚	╔	╩	╦	╠	═	╬	¤
D_	ð	Ð	Ê	Ë	È	ı	Í	Î	Ï	┘	┌	█	▄	¦	Ì	▀
E_	Ó	ß	Ô	Ò	õ	Õ	µ	þ	Þ	Ú	Û	Ù	ý	Ý	¯	´
F_	SHY	±	‗	¾	¶	§	÷	¸	°	¨	·					

5.3.4 Page 3 (CP-860: Portugal)

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ü	é	â	ã	à	Á	ç	ê	Ê	è	Í	Ô	ì	Ã	Â
9_	É	À	È	ô	õ	ò	Ú	ù	Ì	Õ	Ü	¢	£	Ù	Pts	Ó
A_	á	í	ó	ú	ñ	Ñ	ª	º	¿	Ò	¬	½	¼	¡	«	»
B_	▒	▓	▓	▏	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	▉	▄	▌	▐	▀
E_	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F_	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	•	√	ⁿ	²	■	NBSP

5.3.5 Page 4 (CP-863: Canadian-French)

	80h	90h	A0h	B0h	C0h	D0h	E0h	F0h
0	Ç	É	¦	▒	└	╨	α	≡
1	ü	È	´	▓	┴	╤	ß	±
2	é	Ê	ó	▓	┬	╥	Γ	≥
3	â	ô	ú	▏	├	╙	π	≤
4	Â	Ë	¨	┤	─	╘	Σ	⌠
5	à	Ï	¸	╡	┼	╒	σ	⌡
6	¶	û	ª	╢	╞	╓	µ	÷
7	ç	ù	º	╖	╟	╫	τ	≈
8	ê	¤	Î	╕	╚	╪	Φ	°
9	ë	Ô	⌐	╣	╔	┘	Θ	∙
A	è	Ü	¬	║	╩	┌	Ω	·
B	ï	¢	½	╗	╦	▉	δ	√
C	î	£	¼	╝	╠	▄	∞	ⁿ
D	‗	Ù	¾	╜	═	▌	φ	²
E	À	Û	«	╛	╬	▐	ε	■
F	§	ƒ	»	┐	╧	▀	∩	

5.3.6 Page 5 (CP-865: Nordic)

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ü	é	â	ã	à	Á	ç	ê	Ê	è	Í	Ô	ì	Ã	Â
9_	É	À	È	ô	õ	ò	Ú	ù	Ì	Õ	Ü	¢	£	Ù	Pts	Ó
A_	á	í	ó	ú	ñ	Ñ	ª	º	¿	Ò	¬	½	¼	¡	«	»
B_	▒	▓	▓	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐	
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	▉	▄	▌	▐	▀
E_	α	ß	Γ	π	Σ	σ	µ	τ	Φ	Θ	Ω	δ	∞	φ	ε	∩
F_	≡	±	≥	≤	⌠	⌡	÷	≈	°	∙	•	√	ⁿ	²	■	NBSP

5.3.7 Page 6 (CP-852: Hungary)

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ü	é	â	ä	ů	ć	ç	ł	ë	Ő	ő	î	Ź	Ä	Ć
9_	É	Ĺ	Í	ô	ö	Ľ	ľ	Ś	ś	Ö	Ü	Ť	ť	Ł	×	č
A_	á	í	ó	ú	Ą	ą	Ž	ž	Ę	ę	¬	ź	Č	ş	«	»
B_	▒	▒	▓	┤	╡	Á	Â	Ě	Ş	╣	╗	╝	╜	Ż	ż	┐
C_	└	┴	┬	├	─	┼	Ă	ă	╚	╔	╩	╦	╠	═	╬	¤
D_	đ	Đ	Ď	Ë	ď	Ň	Í	Î	ě	┘	┌	▉	▄	Ţ	Ů	▀
E_	Ó	ß	Ô	Ń	ń	ň	Š	š	Ŕ	Ú	ŕ	Ű	ý	Ý	ţ	´
F_	SHY	˝	˛	ˇ	˘	§	÷	¸	°	¨	˙	ű	Ř	ř	■	NBSP

5.3.8 Page 7 (CP-858: EUROPE(Multilingual+Euro Symbol))

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
9_	É	æ	Æ	ô	ö	ò	û	ù	ÿ	Ö	Ü	ø	£	Ø	×	ƒ
A_	á	í	ó	ú	ñ	Ñ	ª	º	¿	®	¬	½	¼	¡	«	»
B_	▒	▒	▓	┤	╡	Á	Â	À	©	╣	╗	╝	╜	¢	¥	┐
C_	└	┴	┬	├	─	┼	ã	Ã	╚	╔	╩	╦	╠	═	╬	¤
D_	ð	Ð	Ê	Ë	È	€	Í	Î	Ï	┘	┌	▉	▄	¦	Ì	▀
E_	Ó	ß	Ô	Ò	õ	Õ	µ	þ	Þ	Ú	Û	Ù	ý	Ý	¯	´
F_	SHY	±	‗	¾	¶	§	÷	¸	°	¨	˙	¹	³	²	■	NBSP

5.3.9 Page 8 (CP-857: Turkey)

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	Ç	ü	é	â	ä	à	å	ç	ê	ë	è	ï	î	ì	Ä	Å
9_	É	æ	Æ	ô	ö	ò	û	ù	İ	Ö	Ü	ø	£	Ø	Ş	ş
A_	á	í	ó	ú	ñ	Ñ	Ğ	ğ	¿	®	¬	½	¼	¡	«	»
B_	░	▒	▓	│	┤	Á	Â	À	©	╣	║	╗	╝	¢	¥	┐
C_	└	┴	┬	├	─	┼	ã	Ã	╚	╔	╩	╦	╠	═	╬	¤
D_	º	ª	Ê	Ë	È	€	Í	Î	Ï	┘	┌	█	▄	¦	Ì	▀
E_	Ó	ß	Ô	Ò	õ	Õ	µ		×	Ú	Û	Ù	ì	ÿ	¯	´
F_	SHY	±		¾	¶	§	÷	¸	°	¨	·	¹	³	²	■	NBSP

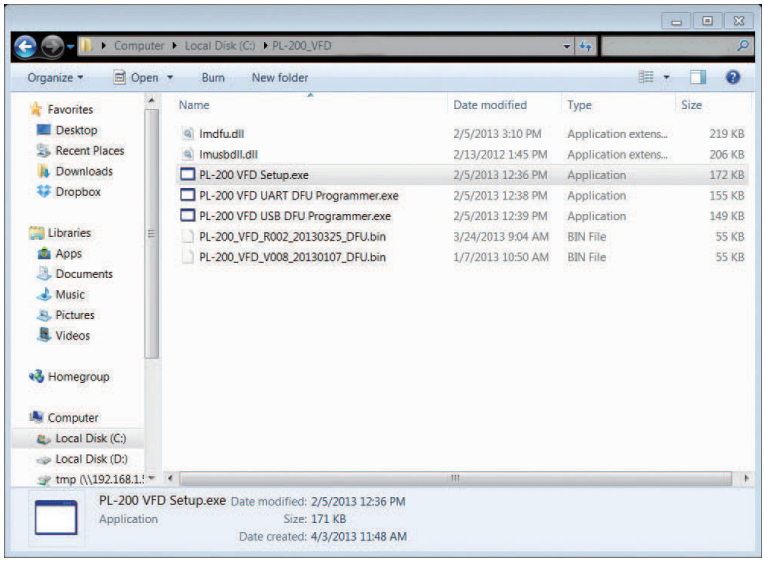
5.3.10 Page 9 (CP-866: Cyrillic(Russia))

	_0	_1	_2	_3	_4	_5	_6	_7	_8	_9	_A	_B	_C	_D	_E	_F
8_	А	Б	В	Г	Д	Е	Ж	З	И	Й	К	Л	М	Н	О	П
9_	Р	С	Т	у	Ф	х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я
A_	а	б	в	г	д	е	ж	з	и	й	к	л	м	н	о	п
B_	░	▒	▓	│	┤	╡	╢	╖	╕	╣	║	╗	╝	╜	╛	┐
C_	└	┴	┬	├	─	┼	╞	╟	╚	╔	╩	╦	╠	═	╬	╧
D_	╨	╤	╥	╙	╘	╒	╓	╫	╪	┘	┌	█	▄	▌	▐	▀
E_	р	с	т	у	ф	х	ц	ч	ш	щ	ъ	ы	ь	э	ю	я
F_	Ё	ё	Є	є	Ї	ї	Ў	ў	°	∙	·	√	№	¤	■	NBSP

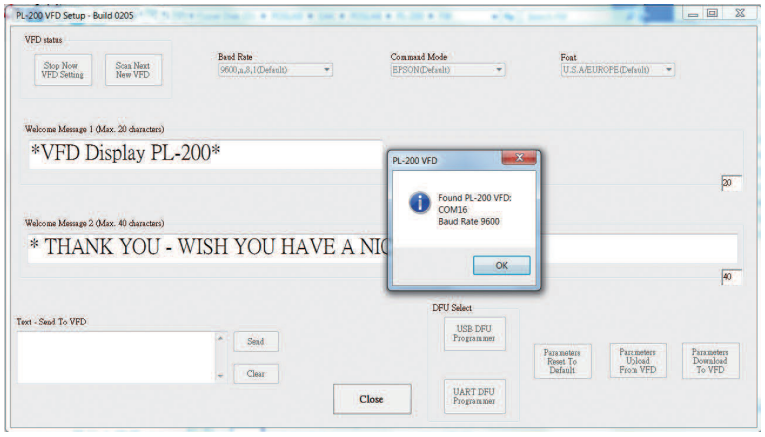
Chapter 6 PL-200 Setup Software Utility Guide

6.1 PL-200 Setup Tool user guide

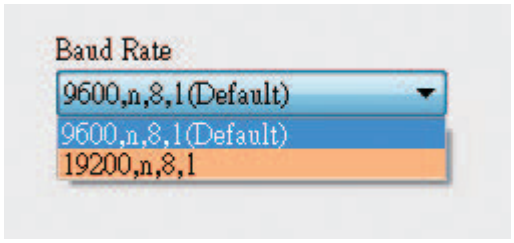
1. Double Click “C:\PL-200_VFD\PL-200 VFD Setup.exe”



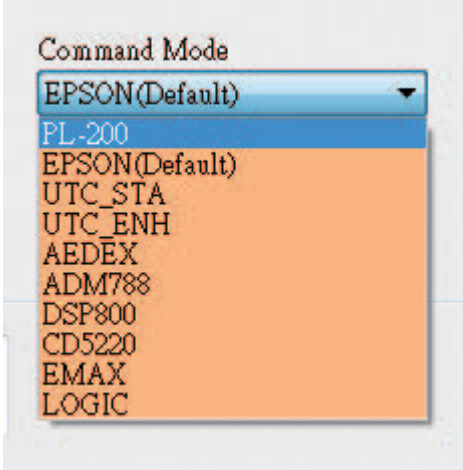
2. PL-200 Setup Tool auto detect



3. Set and Save Parameter
3.1 Select Baud Rate



3.2 Select Command Mode (Please reference Command List)



3.3 Select Font (Please reference Font Code Page List)

3.4 Key in Welcome Massage 1

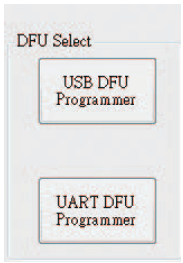
3.5 Key in Welcome Massage 1

3.6 Save Parameter

3.7 Read Parameter from PL-200

3.8 Reset Parameter to Factory default

4. Update PL-200 Firmware



4.1 Update Firmware form USB interface

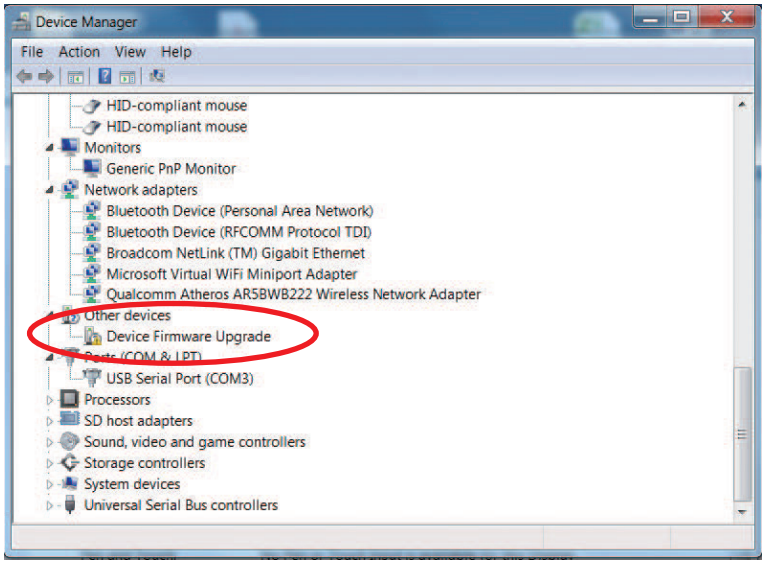
For details, please refer to the PL-200
USB DFU programmer guide

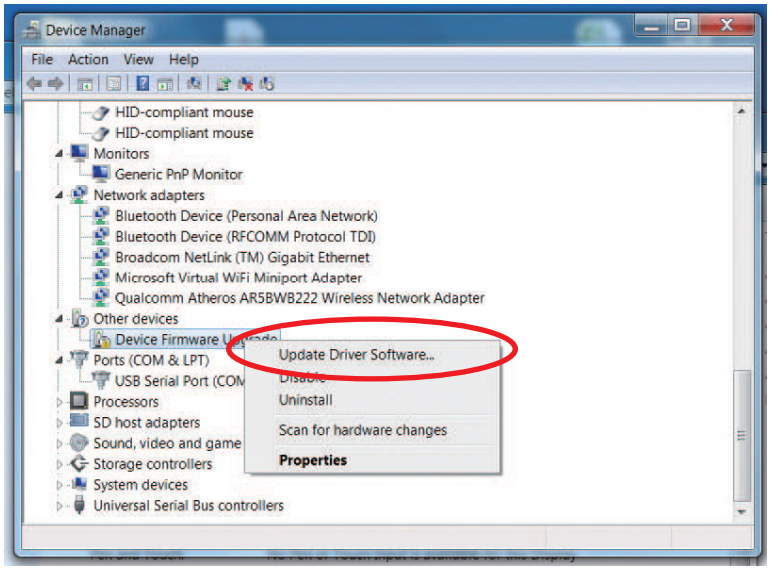
4.2 Update Firmware form RS-232 interface

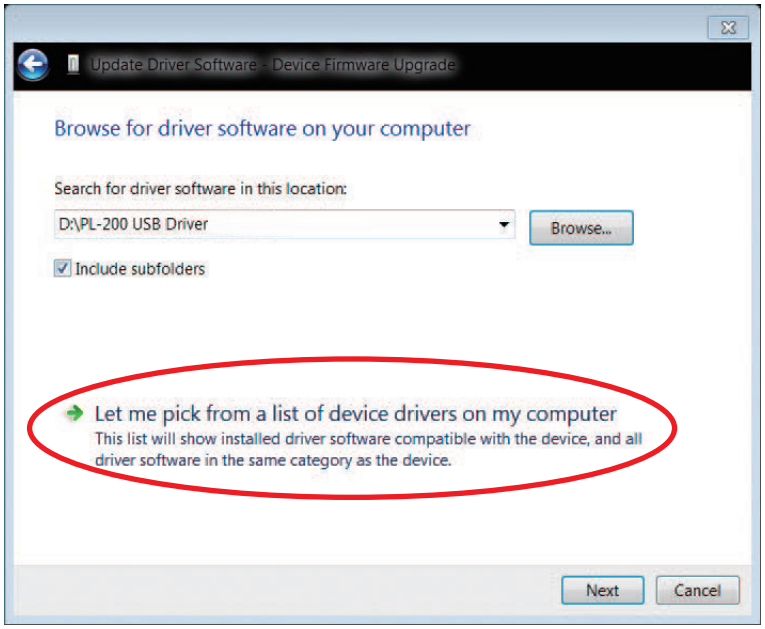
For details, please refer to the PL-200
RS-232 DFU programmer guide

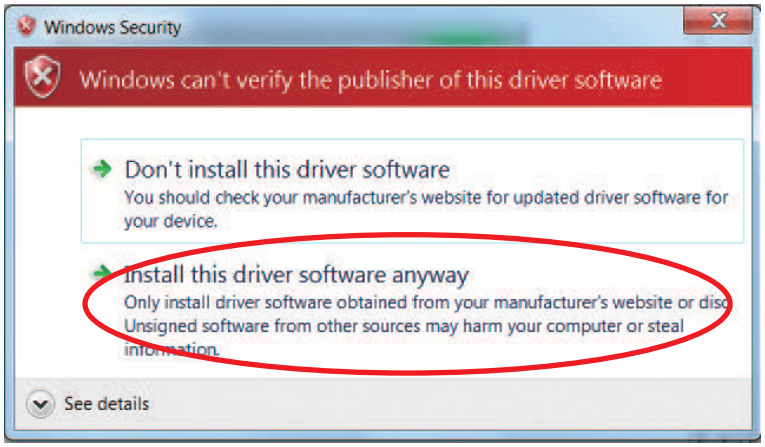
6.2 PL-200 FWU Device driver install guide

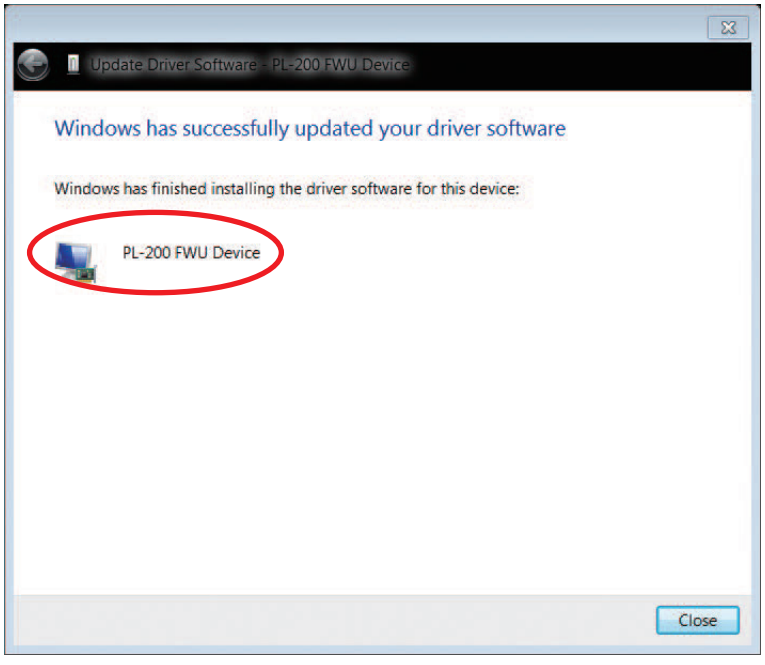
Into ‘device manager’ to install

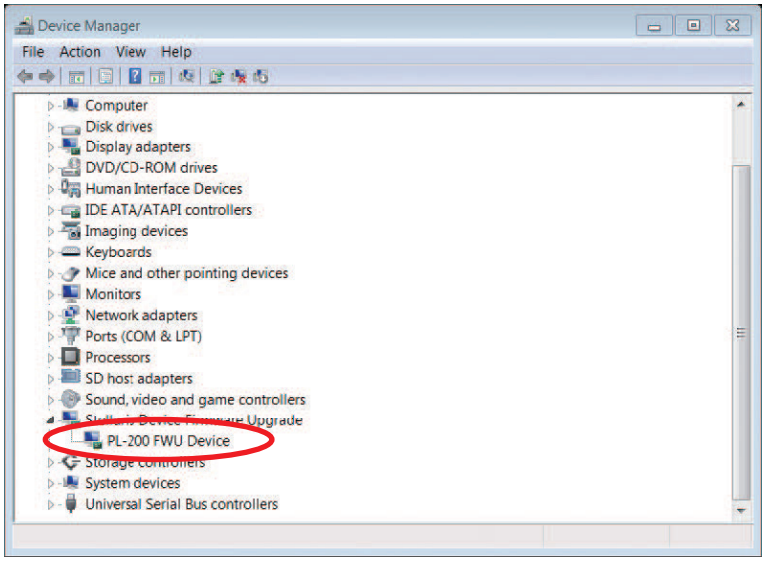





Update Driver Software - Device Firmware Upgrade
Browse for driver software on your computer
Search for driver software in this location:
D:\PL-200 USB Driver
Browse...
Include subfolders
Let me pick from a list of device drivers on my computer
This list will show installed driver software compatible with the device, and all driver software in the same category as the device.
Next
Cancel

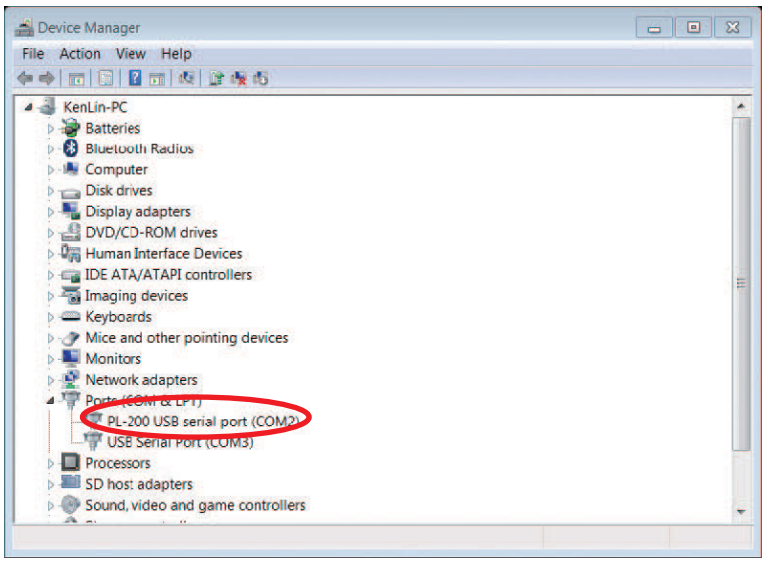

Windows Security
Windows can't verify the publisher of this driver software
Don't install this driver software
You should check your manufacturer's website for updated driver software for your device.
Install this driver software anyway
Only install driver software obtained from your manufacturer's website or disc
Unsigned software from other sources may harm your computer or steal information.
See details


Update Driver Software - PL-200 FWU Device
Windows has successfully updated your driver software
Windows has finished installing the driver software for this device:
PL-200 FWU Device
Close

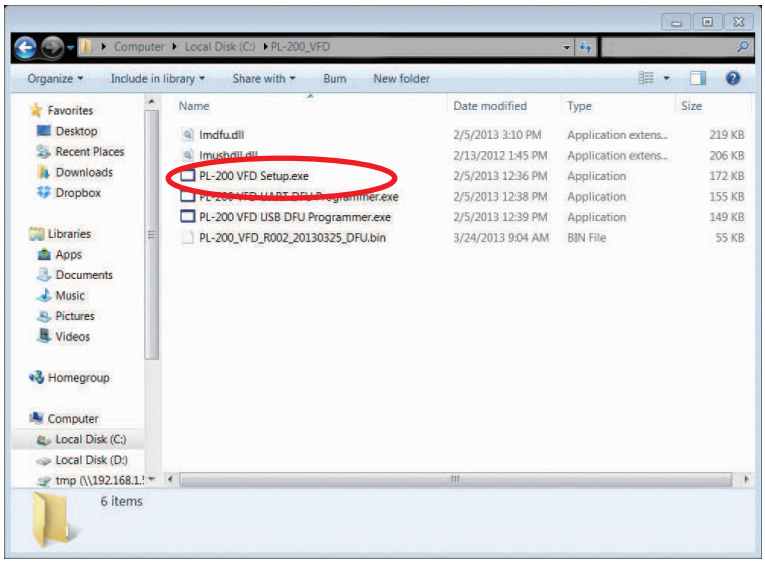


6.3 PL-200 USB DFU programmer guide

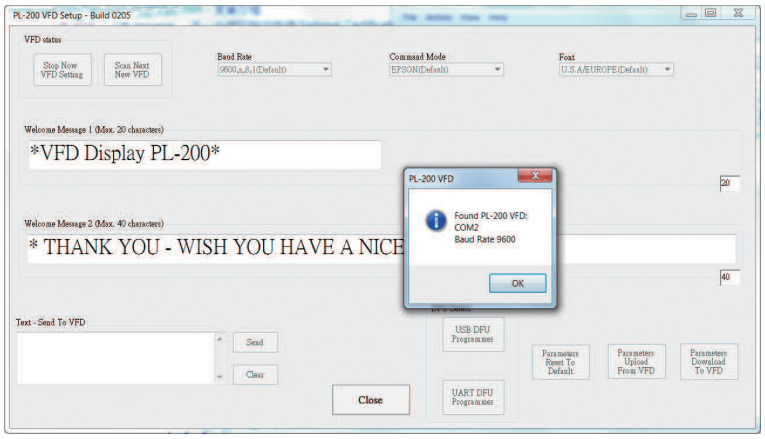
VFD USB connect plug-in to PC, the ‘device manager’ show as below, if driver not install, please see the ‘PL-200 USB serial port driver install guide.pdf’ to install first



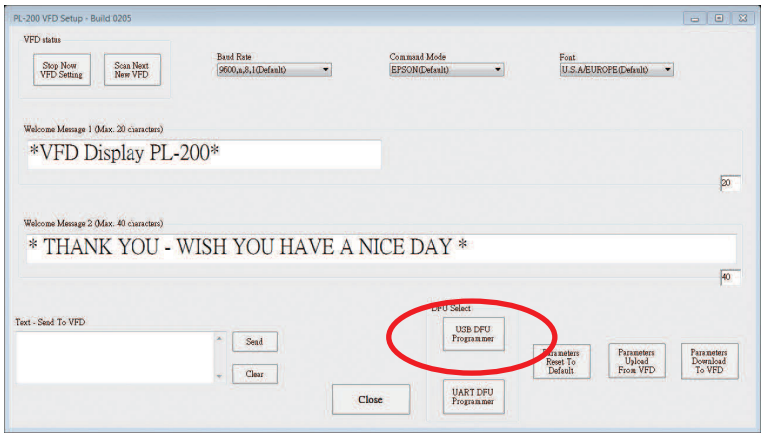
Then run the ‘PL-200 VFD Setup.exe’



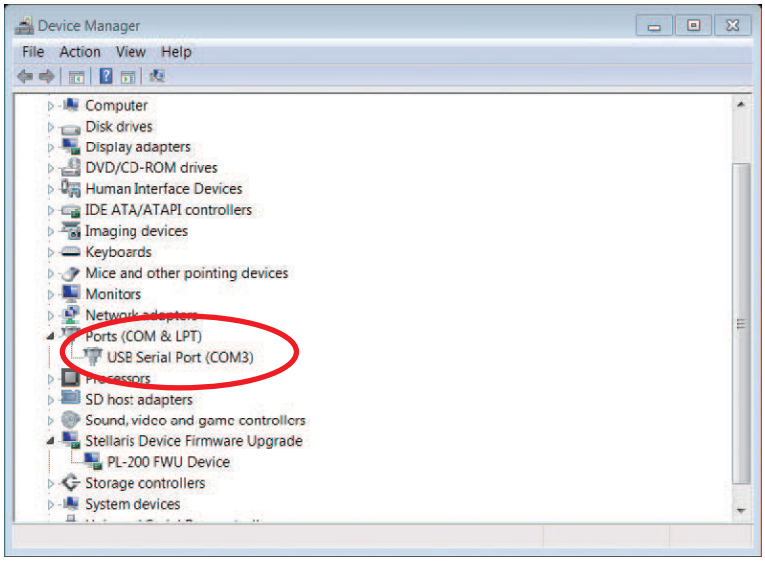
Found the PL-200 VFD device



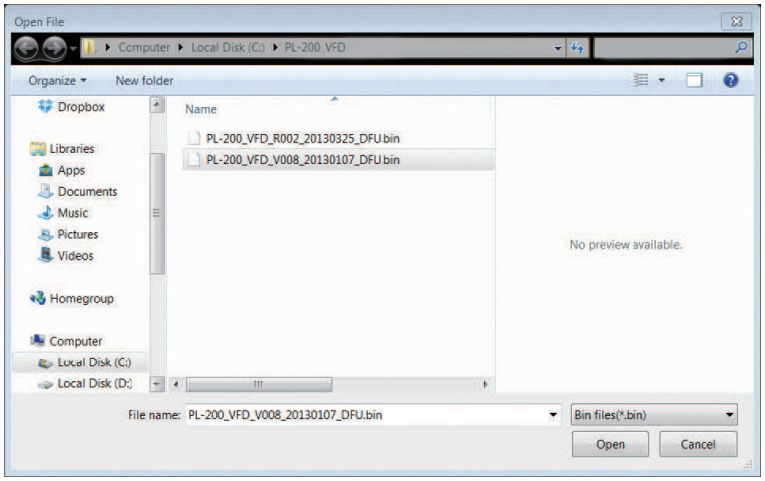
Press the ‘USB DFU Programmer’ button



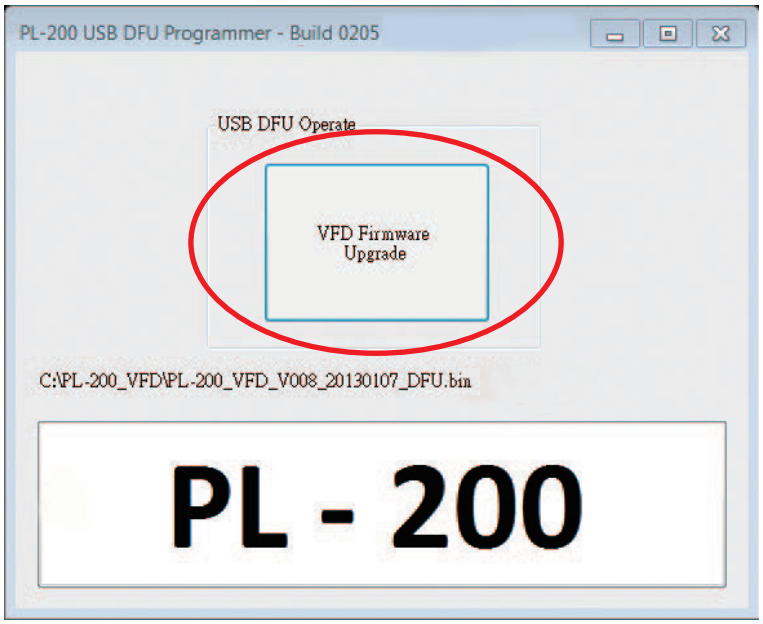
The ‘device manager’ show as below, if driver not install, please see the ‘PL-200 FWU Device driver install guide.pdf’ to install first



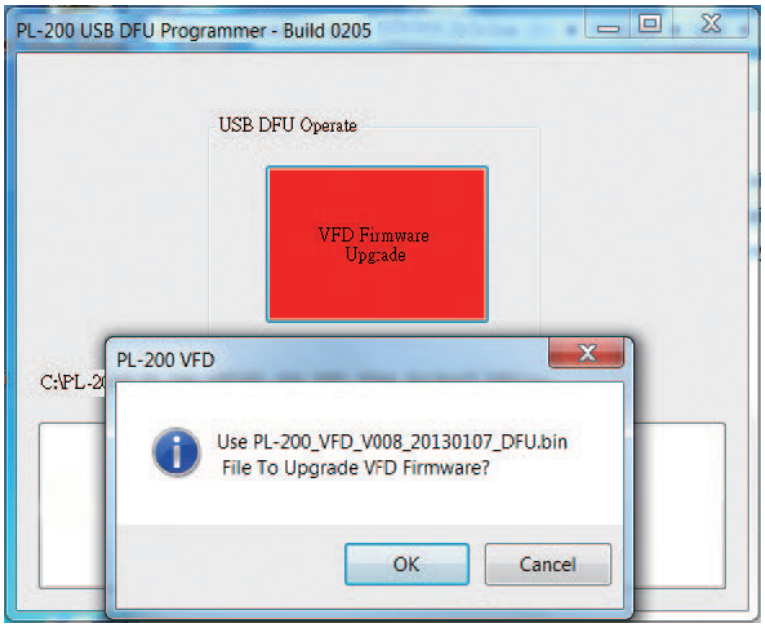
Select bin file



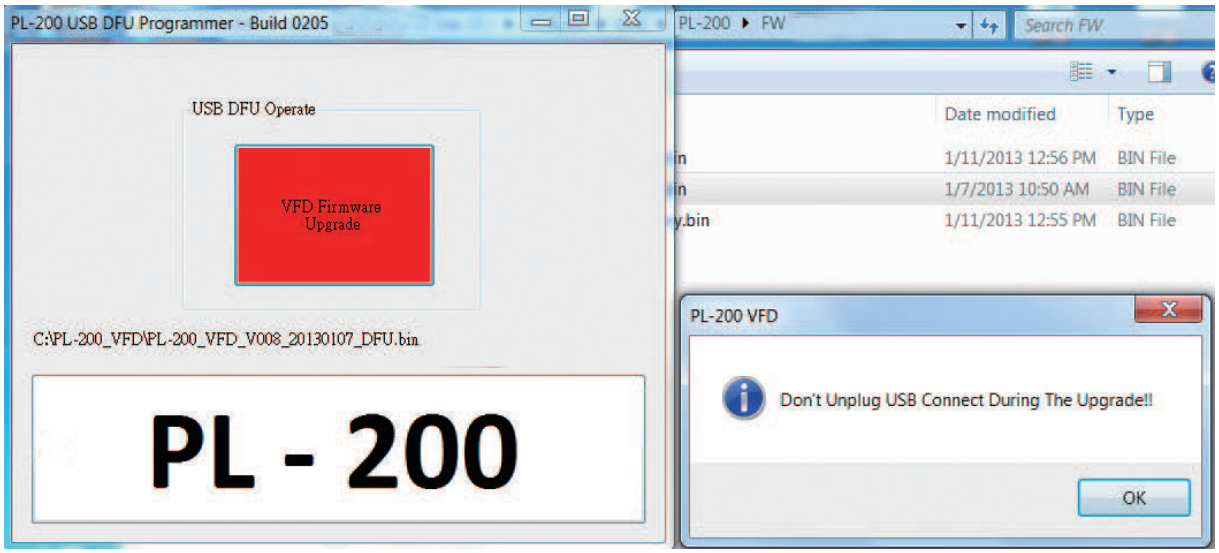
Press the ‘VFD Firmware Upgrade’ button



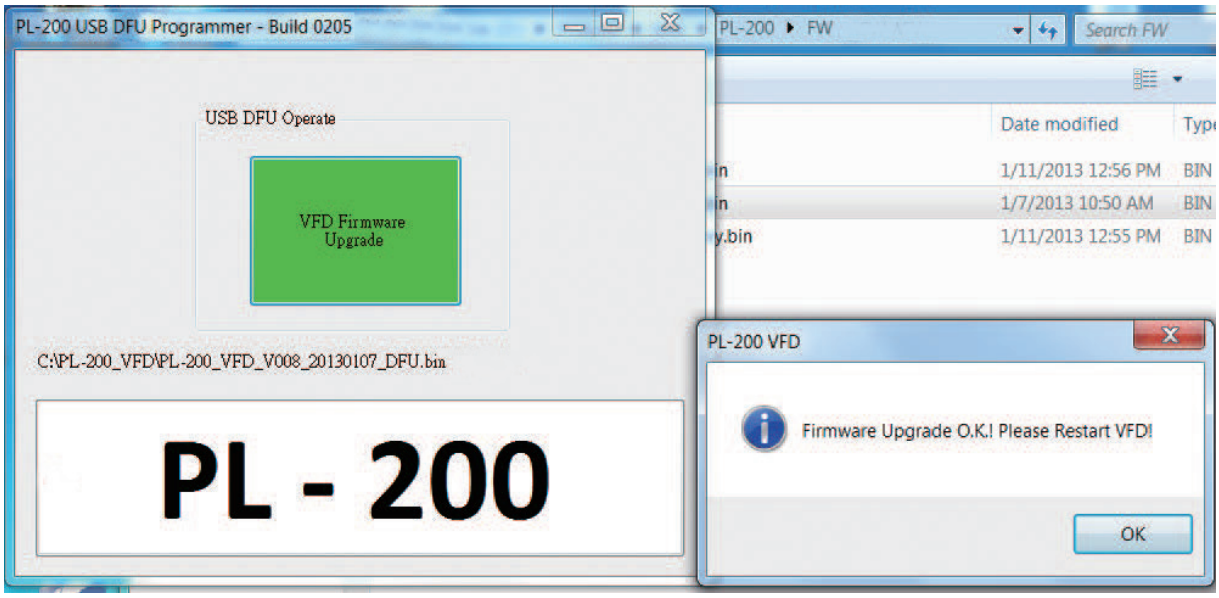
Confirm firmware version



During the firmware upgrade, don’t unplug USB connect



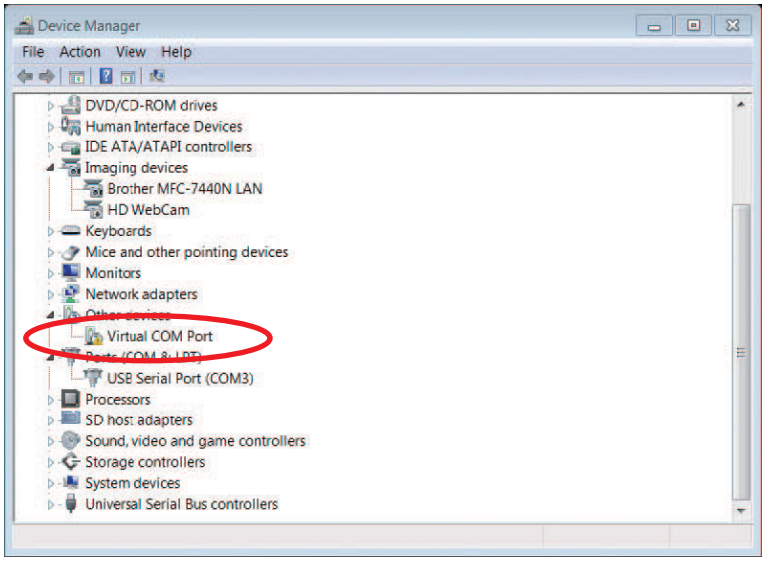
Upgrade finished, unplug the VFD device



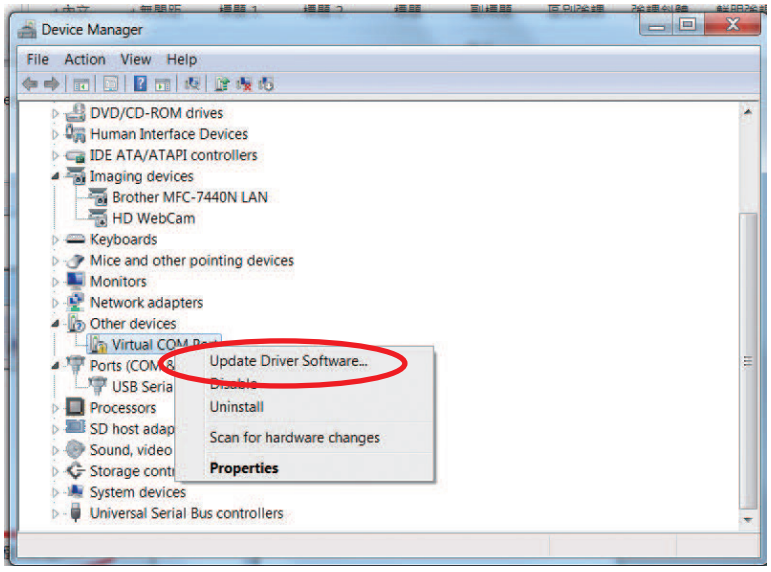
Restart VFD device

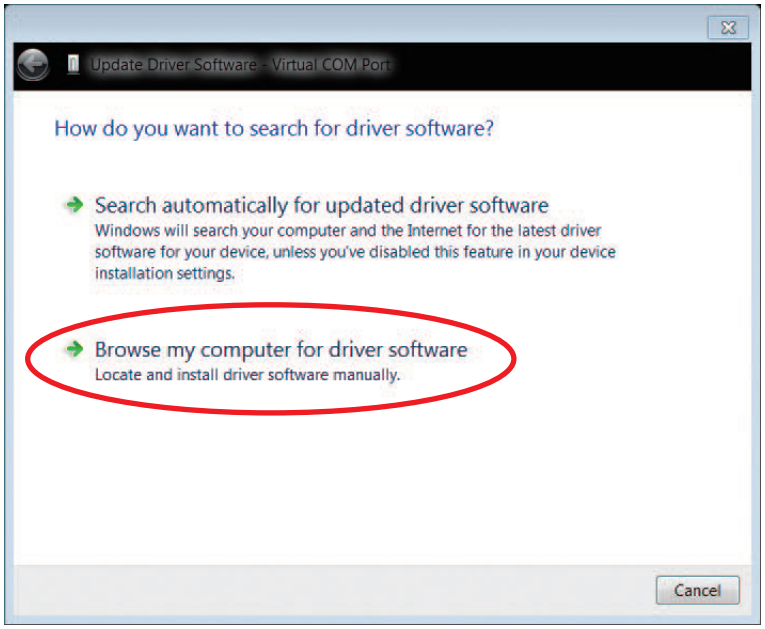
6.4 PL-200 USB serial port driver install guide

Into ‘device manager’ to install

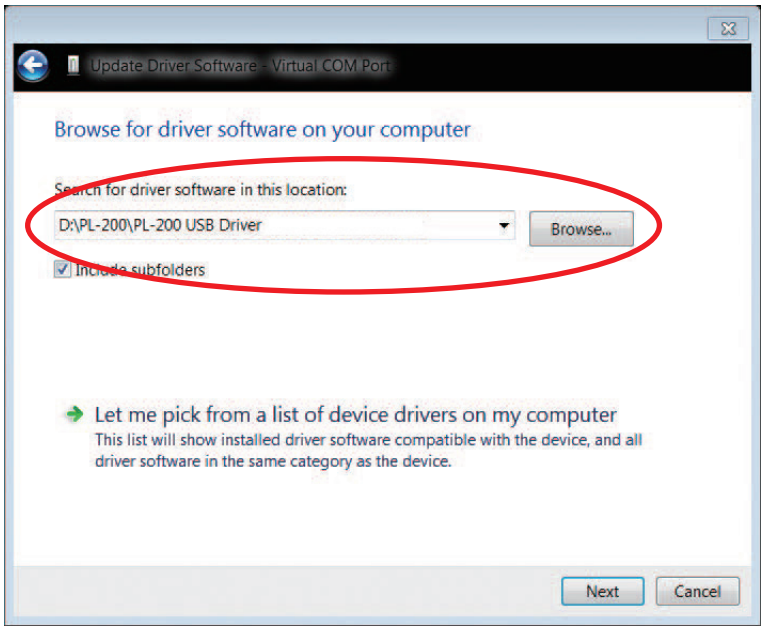


Right click “Virtual COM Port” and Execution “Update Driver Software..”

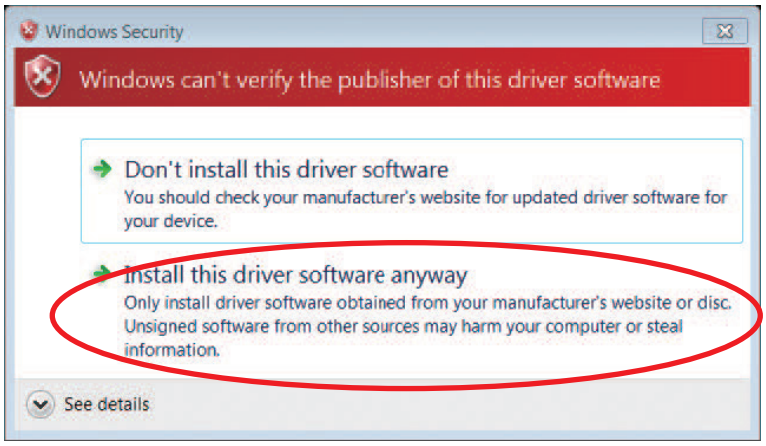


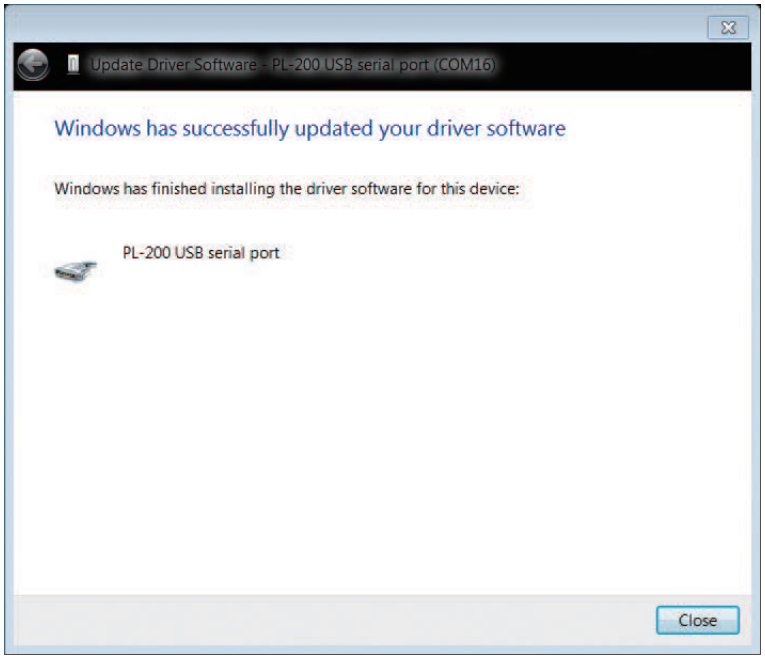

Update Driver Software - Virtual COM Port
How do you want to search for driver software?
Search automatically for updated driver software
Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.
Browse my computer for driver software
Locate and install driver software manually.
Cancel

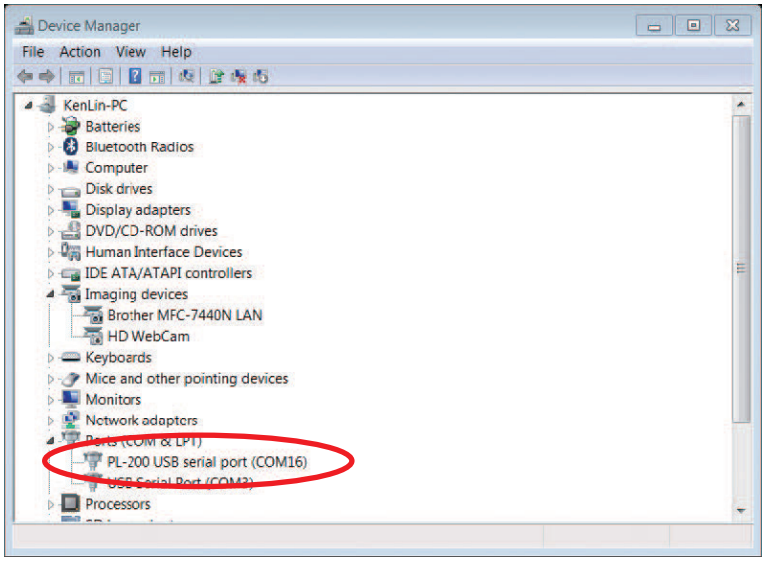
Select your Driver folder


Update Driver Software - Virtual COM Port
Browse for driver software on your computer
Search for driver software in this location:
D:\PL-200\PL-200 USB Driver
Browse...
Include subfolders
Let me pick from a list of device drivers on my computer
This list will show installed driver software compatible with the device, and all driver software in the same category as the device.
Next
Cancel

Install driver


Windows Security
Windows can't verify the publisher of this driver software
Don't install this driver software
You should check your manufacturer's website for updated driver software for your device.
Install this driver software anyway
Only install driver software obtained from your manufacturer's website or disc. Unsigned software from other sources may harm your computer or steal information.
See details


Update Driver Software - PL-200 USB serial port (COM16)
Windows has successfully updated your driver software
Windows has finished installing the driver software for this device:
PL-200 USB serial port
Close



Chapter 7 Installation Guide